

In the claims

1-12. Previously canceled

13. (Amended) An automated method for analyzing distribution of a protein of interest between cell membrane and cell cytoplasm [cells] comprising:

a) providing an array of locations which contain multiple cells, wherein the cells contain a plurality of [one or more] fluorescent reporter molecules, wherein the plurality of fluorescent reporter molecules comprise fluorescent reporter molecules that report on cell cytoplasm, fluorescent reporter molecules that report on cell membrane, and fluorescent reporter molecules that report on the protein of interest;

b) automatically imaging multiple cells in each of the locations containing cells to obtain fluorescent signals from the [one or more] plurality of fluorescent reporter molecules on or in individual cells, wherein the fluorescent signals from the fluorescent reporter molecules that report on cell cytoplasm are used to create cell cytoplasmic masks of individual cells and the fluorescent signals from the fluorescent reporter molecules that report on cell membrane are used to create cell cytoplasmic masks of individual cells;

c) automatically measuring an intensity [one or more features] of the fluorescent signals from the fluorescent reporter molecules that report on the protein of interest in the cell cytoplasmic mask and in the cell membrane mask [~~on or in the individual cells, wherein the one or more features are selected from the group consisting of intensity location, number of fluorescent domains, excitation or emission spectra, and fluorescence resonance energy transfer~~]; and

d) automatically calculating [changes in the one or more features of the fluorescent signals on or in individual cells] one or both of the following:

i) a ratio of the intensity of the fluorescent signals from the fluorescent reporter molecules that report on the protein of interest in the cell cytoplasmic mask and the cell membrane mask; and

ii) a difference of the intensity of the fluorescent signals from the fluorescent reporter molecules that report on the protein of interest in the cell cytoplasmic mask and the cell membrane mask;

wherein the [changes] ratio and/or difference provides a measure of [indicate a change in] the distribution of the protein of interest [one or more fluorescent reporter molecules] between the cytoplasm and the cell membrane in the individual cells.

14. (Amended) The method of claim 13 further comprising contacting the cells with a test compound, and wherein the [changes] ratio and/or difference provides a measure of [indicate a] test compound-induced changes in the distribution of the protein of interest [one or more fluorescent reporter molecules] between the cytoplasm and the cell membrane in the individual cells.

15. (Amended) The method of claim 13 wherein the plurality of fluorescent reporter molecules comprises [is selected from the group consisting of] fluorescently labeled proteins, fluorescently labeled antibodies, and chimeric proteins comprising green fluorescent protein coupled to a protein of interest.

16-20. Canceled

21. (Previously added) The method of claim 13 wherein the cellular protein of interest comprises a protein selected from the group consisting of a GTP binding protein and a protein tyrosine kinase.

22. (Previously added) The method of claim 21 wherein the cellular protein of interest is a GTP binding protein.

23. (Previously added) The method of claim 22 wherein the GTP binding protein is a Rho protein.

24. (Previously added) The method of claim 21 wherein the cellular protein of interest comprises a protein tyrosine kinase.

25. (Previously added) The method of claim 24 wherein the protein tyrosine kinase is a src protein.

26-27. Canceled

28. (New) The method of claim 13 further comprising automatically storing an image of each individual cell.

29. (New) The method of claim 13 wherein the digital data are stored in a database.

30. (New) The method of claim 29 wherein the digital data are stored in a database can be reviewed for individual cells.

31. (New) The method of claim 29 wherein the digital data are stored in a database can be reviewed for individual locations containing cells.